

THE IMMIGRATION OF LEPIDOPTERA
TO THE BRITISH ISLES IN 1981, INCLUDING THAT
OF THE MONARCH BUTTERFLY:
DANAUS PLEXIPPUS L.

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The outstanding invasion of the generally poor season of 1981 was that of *Danaus plexippus* L., which came with many North American birds mainly to south west Britain. Some 120 sightings have been reported and, although numbering of the butterflies concerned is difficult, the influx was probably the largest yet recorded. The records are discussed and set out in detail in Annexe III.

Apart from this, among the scarce immigrant species (Annexe II) the capture in a last fling during the warm week-end of November 20/22 of the tenth known British specimen of the Noctuid *Tathorhynchus exsiccata* Lederer in Cornwall and of an example of the Pyrale *Euchromius ocella* Haw. in Kent are especially notable, as is also the recognition on September 29 in Glamorgan of a single *Cynthia virginiensis* Drury (*Ent. Rec.* 93: 242), which had presumably accompanied the *D. plexippus*. Other good single records are of a *Nymphalis antiopa* L. seen in Surrey on August 15 (*Ent. Rec.* 93: 242), a *Diachrysia orichalcea* F. in West Sussex on August 8, a *Hyles gallii* Rott. observed by day in the Isle of Wight on August 3, and of a *Catocala fraxini* trapped at Lymington, South Hampshire on the night of October 1.

In addition, single larvae of *H. gallii* were found as far apart as Sussex and Yorkshire. Of the two *Nymphalis polychloros* reported (*Ent. Rec.* 93: 237) the first, at Catisfield in Sussex on April 4 may either have over-wintered in Britain or come with other immigrant species about that date; the second, at Whitstable, East Kent, had only slight migratory contemporaries and was perhaps locally bred, either from immigrant or precariously established native stock. *Deltote bankiana* Hbn., which was reported in 1980 as a single immigrant, at Kingsdown, East Kent, now appears to be at least temporarily established nearby (*Ent. Rec.* 93: 204). A single specimen of *Scopula rubiginata* Hufn. taken at Dungeness on August 5 1981 is assumed to have been an immigrant, like the few previous examples recorded from the Kent Coast.

Agrius convolvuli L. alone among the scarcer species did rather better than in 1980. One was seen in Essex in July, one in Lincolnshire in August, and 19 between September 15 and October 5, widely scattered from south Devon to Orkney; but these were mostly single specimens, and no mass immigration appears to have taken place. *Rhodometra sacraria* L. appears to have arrived in three distinct batches. 12 were recorded from September 10 to 20; seven from September 26 to October 4, the last being as far north

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as Warwickshire, and two, both females of ab. *labda* Cramer, on November 21 and 22 at Rogate, Sussex. This form is usually obtained by rearing in warmth in captivity; its presence in the wild, and that of the semi-tropical *T. exsiccata*, in late November shows that this migration must have had a very distant origin. *Mythimna unipuncta* was reported in similar numbers from September 19 to October 5; and one was also present in Cornwall on November 21. These were, however, from four coastal localities only between west Cornwall and south Essex. *M. vitellina* was reported twice in Cornwall in late May but the numbers noted in September and October were very small. Less than ten *Orthonama obstipata* F. were noted, curiously spread at various dates between May 28 and October 5. Of other scarce immigrants there were only two *Spodoptera exigua* Hbn., the second being on November 22, and of *Trichoplusia ni* Hbn. and *Palpita unionalis* Hbn.; and only single records of *Eurois occulta* L., *Mythimna albipuncta* D. & S., *Helicoverpa armigera* Hbn., *Heliothis peltigera* D. & S., *Diachrysia orichalcea* F. A Brimstone butterfly which was observed and captured, but not retained, in a garden at Temple Ewell, Dover on July 28 appears from the careful description to have been an example of *Gonepteryx cleopatra* L. This south European species is not a known migrant, and its presence outside Dover may have been due to introduction in a car or lorry. There have been at least four previous occurrences in Britain between 1870 and 1957.

The total of 23 scarce immigrant species reported in 1981 compares badly with 29 in 1980, itself a poor season; the number of individuals was also very much smaller.

Most of the common immigrants also did badly. Of *Vanessa atalanta* L. one was found hibernating in a heated room in Orkney in February, and five probable immigrants were reported in March and April; but the usual influx in late May and June was small, and no larvae from it were noted though some were found in late August and September. There were, however, considerable immigrations in August and especially in late September, so that numbers may have approached normal in the autumn. The last was seen at Bradwell-on-Sea on October 23.

Of *Cynthia cardui* L. about 120 were reported, in contrast to the abundance of 1980. The earliest singles reported were as far north as St. Bees Head, Cumbria, and Orkney, on May 14; these were followed by a few others, widely spread later in the month, about a dozen in early June and some singles in July. There were apparently several small invasions in August, with penetration inland as far as Warwickshire and Hertfordshire; a few scattered singles in September; and a last record at Beer, South Devon, on October 11. Two full grown larvae and some vacated webs were noted at Muston, south east Yorkshire, on August 10.

Colias crocea Fourc., with some 50 clearly immigrant examples reported, had an interesting year. The first record was not until July 30 at Aylesford Common, South Devon, after which there was a small influx mainly in the south west about the middle of August and in its last days and in early September a larger one, with bigger

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numbers seen in Sussex and Kent and a single in Essex. Inland records were of about five, with some *C. cardui*, at Ashridge, Hertfordshire and of one at Tidworth, North Wiltshire on August 17 and 19. The last specimens seen were at Slapton, South Devon, September 21 and 23. In Warwickshire, however, there was an extraordinary occurrence reported by Mr. D. C. G. Brown (*Ent. Rec.* 93: 241). On August 2, 70 examples were counted, including three *f. helice*, in and near old gravel workings, and ten later visits by him and others to the same place brought the total count to over 400: the last singles were on September 6 and 13, and the only one seen elsewhere was within a mile of the main site. Even allowing for considerable recounting on successive visits such numbers must surely reflect local breeding from several parents. Later information obtained from Mr. R. G. Payne reveals the presence of from seven to 12 male *C. crocea*, but no females, during the second week of August in an area south of Duston, 30 miles further east, in Northamptonshire, where a few (not previously reported) were seen at the same time in 1980. The origin of these large, isolated, occurrences is mysterious. There were no records of *C. crocea* anywhere in Britain in May or June 1981, which might have provided parents; no Warwickshire records of it in 1980, the most recent being of two singles on August 5, 1979; and no other reports from Northamptonshire in 1980 or 1981. Overwintering in Britain in any stage has never been proved, and seems very unlikely so far north as these counties.

Among the common moths *Autographa gamma* L. showed a somewhat patchy picture. Apart from a single specimen at Beetham, Westmorland on May 6, arrivals only began in the last ten days and remained much below average in June and most of July; many observers commented on its unwonted scarcity, which continued in most inland areas for the rest of the season. In August and September, however, sizeable sudden influxes were counted at several coastal light traps. In Sussex at Peacehaven, 63 and 66 on August 6 and 27, a total of 30 for the four nights of September 5 to 8 and at East Dean 100 on August 25; at Bradwell-on-Sea, South Essex, 124, 120, 179 on August 13, 14 and 26, and a total of 71 for September 6 to 9. Other traps near the coast, however, as at Chillington, South Devon and Beetham, Westmorland, reported no considerable influxes and "lowest ever" totals for the season. Sudden relative increases in the numbers of *A. gamma* are often useful in checking the arrival points and dates of immigrant swarms which include other, and scarcer, immigrants.

Agrotis ipsilon Hufn. began well with two influxes, widely reported, about March 7 and again in late March and early April; breeding from these may have provided most of the few moths recorded in June and July. Numbers from August to October were clearly lower than usual; but the species put in an appearance during the last immigration of November 20 to 22. No records of it came from places north of Cumbria.

Peridroma saucia Hbn., with about 40 reported from 12 places, was also unusually scarce. The first was at Rogate, West Sussex, on

May 22, followed by two others elsewhere in June, and there were small immigrations, mainly to the south and south east coast from late August into October; eight were trapped at Fountainstown, co. Cork before September 23. The last record was at Hayling Island, South Hampshire on October 21, and the most northerly at Beetham, Westmorland, on October 4. Of the diurnal *Macroglossa stellatarum* L. only eight were reported, from five places: three at Slapton Sands, South Devon, in late August, with the first in West Cornwall on June 16 and another on July 14; there was one at Leigh, Surrey on September 6, and the last at Bromley, West Kent on October 14.

The usual immigrant Microlepidoptera did little better. *Nomophila noctuella* D. & S., despite an early start in late March and April in Essex and elsewhere, was a rarity except after very small influxes in September; but two were noted as far north as Caldarvan, Dumbartonshire, and the last was seen at Mawnan Smith, West Cornwall, on November 22. *Udea ferrugalis* Hbn. was reported from few places only in small numbers, but seems to have been least scarce in late August. The first record was on June 6 and the last on November 22, both at Mawnan Smith, West Cornwall. *Plutella xylostella* L. is often overlooked unless it appears in swarms at light traps or among crops. It was nonetheless reported by some 20 observers from the south coast to Orkney, and it occurred in every month, from the first two at Peacehaven, Sussex on April 2 until the last at Hampstead Middlesex, on October 18. Large influxes appeared at Peacehaven in late May and early June and again in late July, and 30 were trapped at Langness, Isle of Man on June 12; from August onwards it was in smaller numbers but more widespread, probably resulting from local breeding. The species is suspected of being resident as well as immigrant.

The Noctuid *Phlogophora meticulosa* L., is a common species which many recorders may not realise is certainly both immigrant and resident. Early moths, such as the singles reported at Hampstead on April 4 and 24, were probably immigrants, since native larvae, even helped by an unusually mild winter, would not have produced moths so early, though they no doubt contributed many if not most of the considerable numbers which were widespread in southern England through June and early July. After a pause numbers again rose steeply to much higher levels in September and early October. There is then clear evidence of immigration near the coast: a trap on the cliff edge at Highcliffe, South Hampshire on September 29 scored 56 *P. meticulosa* along with nine *A. ipsilon*, and a peak of 71, with very few before or after, was registered from October 2 to 7 at Muston on the Yorkshire coast. The last record of the year, a single at Bramley, Surrey on November 21 was also probably immigrant. But, to judge from the abundance of the species there and elsewhere inland in late August and September, a second home bred generation also played some part. The northern limit of successful over-wintering in Britain is not known, and the interplay of immigration and residence is not fully understood. Six specimens of *P. meticulosa* trapped in Orkney from September 1

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to 16 may have been primary immigrants to Britain, or immigrants to Orkney of southern native stock.

We have received a number of reports of *Rhyacia simulans* Hufn., especially from Essex, Kent, and Lincolnshire. These support our previous view that such occurrences in recent years have resulted from internal spread of the species rather than from immigration. At Bradwell-on-Sea 22 were trapped in small nightly numbers over the whole period from July 5 to August 4; and in south east Lincolnshire, where the species was first seen in 1978, it is now well established. *Spaelotis ravida* D. & S., often said to be an immigrant, has recently shown a similar internal spread.

ANNEXE I

Records and localities

(The names of recorders who gave information about *D. plexippus* are starred.)

- *Alexander, Mrs R., per J C, Skomer.
Pembrokeshire
- *Agassiz, Rev. D.
- *Archer-Lock, A., S. Devon
- *Allison, Mr and Mrs, per BG, S. Hants.
Baker, B. R., Caversham, Oxon.
Barrington, R. D., Lulworth, Dorset
Bond, K. G. M., Isle of Man, co. Dublin, co. Cork.
- *Bovey R., per JC, Dyfi N.N.R., Merioneth
- Braddock, A., per CRP, Alfreton, Derbyshire
- Bretherton, R.F., Bramley, Surrey
Bretherton, M.F., S. Devon
- Briggs, J., Westmorland
- Brown, D. C. G., Charlecote, Warwicks.
- Buckingham, C., Sevenoaks, W. Kent
- Buddle, R. F., Dover, Folkestone
- *Burridge, R., per MR, at sea off Ushant
- Burrows, D. S., S. Hants, N. Devon
- Burton, J. F., Bristol, Cambs, Dyfed
- Butcher, A. G. J. B., Rochester, Tenterdan, E. Kent
- Campbell, J. L., Isle of Canna
- *Campbell, W. D., *Guardian*, 21.X.81
- Carter, C. I., Tidworth, Wilts
- Chalmers-Hunt, J. M., Kent, co. Wicklow
- Chambers, R., Temple Ewell, E. Kent
- *Church, S., Chiddingfold, Surrey, Plaistow, Worthing, W. Sussex
- Christie, I. A. C., Dumbartonshire
- Clouter, F. H., Isle of Wight
- *Comont, J., Dyfed
- *Cowell, M., per CRP, E. Sussex
- Craske, R., per CRP, E. Sussex
- Cross, G., Bridport, Dorset, per BS.
- Dewick, A. J. & S. F., Bradwell-on-Sea, S. Essex
- *Elliott, B., Lizard, W. Cornwall
- Enfield, M. A., E. Kent
- Evans, K. A. G., Croydon, Surrey, Lyme Regis, Dorset
- Eve, H. C., E. Kent
- Fairclough, R., Leigh, Surrey
- Feltwell, J., Catisfield, E. Sussex
- *Foggitt, G. T., Scilly
- Foster, A. P., Mawnan Smith, W. Cornwall
- Gascoyne-Pees, M., Ranmore, Surrey
- *Goater, B., S. Hants and various
- *Green, Dr. G., Winspit, Dorset
- Greenwood, J. A. C., Rogate, W. Sussex
- Gregory, J., per CRP, Par, E. Cornwall
- Hadley, M., E. Sussex, Polruan, W. Cornwall
- Hall, N., Portland, Dorset; Scilly, Tilehurst, Berks
- Harman, T. A., Reculver, E. Kent
- *Harmer, A., Lymington, S. Hants
- Hart, C., Betchworth, Surrey; Barton Broad, E. Norfolk
- *Harvey, Prof., per D. Agassiz
- *Haynes, R. F., Galway, Eire
- *Heath, J., various
- *Hedges, J., Ballakaghan, Isle of Man
- Hilliard, R. D., Ashridge, Herts.
- Holdaway, P., Biggin Hill, E. Kent
- Howarth, T. G., Beer, S. Devon
- Howell, Mrs S. J., Sussex
- *Hunt, D. per RDP, Scilly
- Imber, S., Ewhurst, Surrey
- Jackson, S. A., Newton Dale, N. Yorkshire.
- *J. Jamieson, Mrs., per D. Hunt, St. Martin's Scilly
- Jewess, P. J., Newington, E. Kent
- *Kydd, D. W., Sellafield, Cumberland; Dolgellau, Merioneth
- Largen, R., Wiston, W. Sussex
- Lipscomb, Major Gen. C. G., Glamorgan
- Lloyd, B., per CRP, Lullington
- Heath, E. Sussex

- *Lorimer, Dr. J. A., Pembrokeshire
Lorimer, R. I., Totteridge, Herts;
Orphir, Orkney
Luckens, Dr. C. J., Winspit, Dorset
McRitchie, B., W. Essex; St. Ives/
Portreath, W. Cornwall
Maynard, C., per CRP, E. Sussex
Miles, P. J. S., Cambridge
Myers, A. A., Fountainstown, co.
Cork
Newbery, P. E., RSPB wardens'
reports
O'Heffernan, H. L., Slapton and
Chillington, S. Devon
O'Keefe, per BS, Heathfield, E.
Sussex
Owen, Prof. D. F., Dungeness,
Dymchurch, Dover, E. Kent
Owen, R., Bigbury-on-Sea, S. Devon
Parsons, M., per CRP, Ninfield, E.
Sussex; Polruan, W. Cornwall
Payne, J. H., Wellingborough,
Northamptonshire
*Penhallurick, R. D., Scilly, Cornwall,
Devon
Phillips, J. W., Topsham, S. Devon;
Purbeck, Dorset
Pilcher, R. M., S. Thorsby, Lincs.
*Plymouth City Museum, S. Devon
Porter, J., Sheffield Park, E. Sussex
*Pratt, C. R. P., Peacehaven and
widely in Sussex
Randall, C. J., Whitstable, Thanet,
E. Kent
Radford, J. T., per CRP, Walberton,
W. Sussex
*Rayner, E., Pagham, W. Sussex
*Rogers, M., per JH, at sea
Seaford Nat. Hist. Soc., per CRP,
E. Sussex
*Searle, Col., per SC, Worthing,
W. Sussex
Sell, M., per RIL, Scilly
Skinner B., Wye, Kent and various
Smith, B., South Croydon, Surrey
*Smith, F. H. N., Nancledra, Penhale,
etc., W. Cornwall
Softly, R. A., Hampstead and
Fulham, Middx.
Sokoloff, P., Bromley, W. Kent
Sterling, Col. D. H., Winchester,
S. Hants
Walters, J. W., Hayling Is., S. Hants
Warren, Miss E., Folkestone, Kent
*Wildridge, B., Thame, Oxon.
*Wills, D., per B. Elliott, W. Cornwall
Wilson, D. E., Dungeness, E. Kent
Winter, P. Q., Muston, S. E. Yorks.
*Woodman, J., per CRP, Rottingdean,
E. Sussex
Wykes, Uploders, Dorset.
*Zealley, M. J., per RDP, Scilly

ANNEXE II

Records of scarcer immigrant species in 1981

- EUCHROMIUS OCELLEA Haw. (1) E. Kent: Wye, 22.11, one at light in the field (BS).
PALPITA UNIONALIS Hbn. (2) S. HANTS Hayling Island, 30.9. (JMW). S. ESSEX: Bradwell-on-Sea, 1.10 (AJD).
[GONEPTERYX CLEOPATRA L. (1). E. KENT: Temple Ewell, Dover, 28.7, in garden (RC).]
NYMPHALIS POLYCHLOROS L. (2). E. KENT: Whitstable, 8.7 (CJR, *Ent. Rec.* 93: 237); E. SUSSEX: Catisfield, 4.4, basking on a wall and apple tree (JF).
NYMPHALIS ANTIOPA L. (1) SURREY: South Croydon, in garden (RS, *Ent. Rec.* 93: 241).
DANAUS PLEXIPPUS L. AND CYNTHIA VIRGINIENSIS Drury, see Annexe III
SCOPULA RUBIGINATA Hufn. (1) E. KENT: Dungeness, 5.8 (DEW *teste* BS).
RHODOMETRA SACRARIA L. 21 W. CORNWALL: Mawnan Smith, 16.9, male, 1.10, male (APF), S. ESSEX: Bradwell-on-Sea, 15.9, male, 27.9, male (AJD). S. HANTS: Highcliffe, 14.9 (EPW); Winchester, 20.9 (DCS). E. KENT: Rochester, 10.9; Tenterden 12.9, male, 19.9, 30.9, male (A.J.G.B.); Sandwich, 14.9, male disturbed at 4 p.m. (JMC-H). SURREY: Addiscombe, 10.9, male, 11.9, male, 26.9, female (KAGE). E. SUSSEX: Ninfield, 28.9, 30.9 (MP per CRP). W. SUSSEX: Wiston, 15.9 (RL per CRP); Rogate, 20.9, male; 21.11, male, 22.11, female, both ab. *labda* (JACG). WARWICKS. Charlecote, 4.10, by day (DCGB, *Ent. Rec.* 93: 241)

- ORTHONAMA OBSTIPATA F. (c. 10). S. ESSEX: Bradwell-on-Sea, 8.7, 11.9 (SFD, AJD). S. HANTS: Winchester, 15.9. (DHS); Hayling Is., 15.10, male (JMW). SURREY: Betchworth, 28.5, male (CH). W SUSSEX: Wiston, 29.7, 1.8 (RL per CRP). SCILLY: 13/20.10, several at ivy (NH).
- AGRIUS CONVOLVULI L. (21) S. DEVON: Bigbury-on-Sea, 12.9, female at rest (R. Owen per DFO); Lyme Regis, 13.9, male at rest on boat in harbour (KAGE). DERBYSHIRE: Ilkeston, 9.9, male (AB per CRP), Alfreton, 30.9, a.m., at rest on a coat (AB per CRP). DORSET: Bridport, 20.9 (GC per TWH). N. ESSEX: Hatfield Broad Oak, 15.7 (per BMcR). E. KENT: Folkestone, 28.9, female, 7.10, male (RFB). N. E. LINC'S: South Thoresby, 22.8 (REMP). ORKNEY: Holm, 15.9, on a school wall (RIL). SURREY: Leigh, 26.9, 28.9 (RF); Chiddingfold, 29.9 (SC). E. SUSSEX: Eastbourne town, c.17.9, on a parked car (CM per CRP); Peacehaven, 29.9, female at nicotiana: no ova present (CRP). W. SUSSEX: Plaistow, 22.9 (SC); Walberton, 27.9, 30.9, 4.10 (JTR per CRP); Wiston, 29.9 (RL per CRP). S. E. YORKS: Filey, 5.10, 10 a.m., very battered on ground near cliff top (PQW).
- ACHERONTIA ATROPOS L. (1 adult, 11 larvae). KENT, E.: Dover, 28.9, female. E. SUSSEX: Heathfield, 14/18.9., eleven almost fully grown larvae on potato plants (DO'K per BS).
- HYLES GALLII Rott. (1 adult, 2 larvae). ISLE OF WIGHT: Great Combe Wood, 2.30 p.m., one at rest (FHC, *Ent. Rec.* 93: 239). E. SUSSEX, Lullington Heath, 10.9, larva confirmed by photo (B. Lloyd per CRP). N. E. YORKS: Scarborough district, 13.9, fully fed larva, which pupated 17.10, confirmed at Museum (per PQW).
- [LYMANTRIA DISPAR L. (1) SURREY: Ewhurst, 5.7, worn male at light; later inquiry shows that this probably resulted from local rearing in captivity (SI)].
- EUROIS OCCULTA L. (3) E. KENT: Newington, nr. Sittingbourne, 2.9 (PJJ), E. NORFOLK: Irstead, 28.7 (CH). S. E. YORKS: Muston, 7.9 female, infertile ova (PQW).
- MYTHIMNA ALBIPUNCTA D. & S. (1) DORSET: Milton Abbey, 29.9, male (RDB).
- MYTHIMNA VITELLINA Hbn. (7) W. CORNWALL: 29.5, worn male (APF). E. CORNWALL: Par, 19.5 (per CRP). MID CORK: Fountainstown, before 23.9 (AAM). S. ESSEX: Bradwell-on-Sea, 2.10 (AJD). S. HANTS: Highcliffe, 31.10 (EPW). W. SUSSEX: Walberton, 11.9, 30.9 (JTR per CRP).
- MYTHIMNA UNIPUNCTA Haw. (17) W. CORNWALL: Mawnan Smith, 16.9, 28.9, 29.9, 30.9 (2), 21.11, all males (AJP). ESSEX: Bradwell-on-Sea, 28.10 (AJD). S. HANTS: Highcliffe, 20.9., 23.9, 26.9, 27.9, 3.10 (EHW); Hayling Island, 27.9, 28.9, 29.9, 3.10, 9.10 (JMW). E. SUSSEX: Beachy Head, 15.9 female at light, lacking ova (CRP).
- TATHORHYNCHUS EXSICCATA Led. (1) W. CORNWALL: Mawnan Smith, 22.11, male (APF).
- SPODOPTERA EXIGUA Hbn. (2) E. SUSSEX: Ringmer, 22.11 (CRP). W. SUSSEX: Rogate, 4.6 (JACG).
- HELICOVERPA ARMIGERA Hbn. (1) W. SUSSEX: Walberton, 7.10 (JTR). HELIOTHIS PELTIGERA D. & S. (1) WARWICKS: Charlecote, 4.10, among clover by day (DCGB).
- [DELTOTE BANKIANA Hbn. E. KENT: nr. Sandwich, 4.7, a short series and more later (NFH), 4.7, one (TWH, *Ent. Rec.*, 93: 204): apparently now breeding here.]
- TRICHOPLUSIA NI Hbn. (2) W. CORNWALL: Kynance Cove, 26.8 (BE). DORSET: Portland, 5.9 (NMH).
- DIACHRYSLA ORICHALCEA F. (1) W. SUSSEX: Walberton, 12.8 (JTR per CRP).
- CATOCALA FRAXINI L. (1) S. HANTS: Lymington, 1.10, female (AH).

(To be continued)